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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/595,198	06/16/2000	Marc Fleischmann	TRANS39	1109

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EXAMINER

CONNOLLY, MARK A

ART UNIT	PAPER NUMBER
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2115

DATE MAILED: 06/03/2004

11

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/595,198

Applicant(s)

FLEISCHMANN ET AL.

Examiner

Mark Connolly

Art Unit

2115

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-11, 14 and 15 is/are allowed.
- 6) ☒ Claim(s) 1-5, 12, 13 and 16-18 is/are rejected.
- 7) ☒ Claim(s) 6 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. Claims 1-19 have been presented for examination.
2. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 12 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al [Lee] US Pat No 6484274 in view of Ebrahim US Pat No 5878264.

5. Referring to claim 1, Lee teaches preserving internal context in a private memory accessible only by the processor [Fig. 1A, col. 2 lines 58-61 and col. 5 lines 1-15]. It is interpreted that the system management memory (SMM) is accessible only to the processor because the SMM is accessed through the CPU state saver (110S) which is only found within the processor and only stores CPU context information. In addition, the system makes known that the SMM inaccessible to the operating system and all other running applications which would control access the SMM by the rest of the system.

Lee does not explicitly teach:

- a. determining if said prescribed period of inactivity has been attained
- b. preserving the context against loss due to removal of electrical power from the processor wherein the private memory is powered independently from the processor

- c. removing power from the processor while power is still being supplied to the computer
- d. restoring power to the processor and restoring the processor context to the processor

In summary, Lee does not teach saving the processor context so that the processor can be powered off and restoring the processor context when power is restored to the processor. Ebrahim teaches saving the processor context in a memory while powering down the processor and restoring the context when power is restored to the processor [col. 4 lines 43-61]. Because the processor is powered off during a sleep state, it is interpreted that power is still being supplied to the system during the period where power is not being supplied to the processor. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the teachings of Ebrahim into the Lee system because it would allow the Lee system to save power by allowing the system to enter a sleep mode and then allow the system to wake more quickly through a warm boot rather than having to go through a cold boot which is more time consuming. Because sleep modes are initiated when a predetermined period of inactivity occurs, it is interpreted that the Lee-Ebrahim system performs the above steps to preserve processor context when a predetermined period of inactivity occurs.

- 6. Referring to claim 2, it is obvious that the Lee-Ebrahim system would read and write the processor context into the private memory before power was removed from the processor otherwise the context would be lost.
- 7. Referring to claims 12 and 16, this is rejected on the same basis as set forth hereinabove.
- 8. Referring to claim 17, Lee teaches that the SMM is external to the processor [Fig. 1A].

9. Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee and Ebrahim as applied to claims 1, 2, 12 16 and 17 above, and further in view of Gebara et al [Gebara] US Pat No 6035407.

10. Referring to claim 3, although Lee-Ebrahim system teaches supplying power to the SMM while power to the processor is removed, it is not explicitly taught what type of memory makes up the SMM. Gebara teaches processors having private cache memories coupled to them [Fig. 1B and col. 1 lines 36-40]. It would have been obvious by design choice to realize the SMM as a cache memory because, as seen in Gebara, private processor cache memories have already been put into practice and the use of the SMM as a cache memory would allow processor context to be written and retrieved much faster than if another type of memory were used since cache memories reside very close to the processor and are very low latency and very high speed memories.

11. Referring to claim 18, it is well known in the art that cache memories can exist within a processor. It would have been obvious by design choice to incorporate the SMM cache memory internal to the processor because it would further increase the speed at which context information could be written and retrieved because the distance from the processor to the SMM memory would be reduced.

12. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee and Ebrahim as applied to claims 1, 2, 12 16 and 17 above, and further in view of Applicants Admitted Prior Art [AAPA].

13. Referring to claim 4, the Lee-Ebrahim system does not explicitly teach initializing the processor and determining whether application of power was due to a power on reset or a resume from a suspend to RAM (STR) condition and restoring the preserved processor context if it was determined that power commencement was due to an STR. The AAPA teaches initializing the processor and determining if the power was removed due to a power on reset or an STR [page 4 lines 13-16]. The AAPA also teaches that if it has been determined that the power removal was due to an STR to access and restore the preserved processor context [page 4 lines 16-21]. It would have been obvious to one of ordinary skill in the art at the time of the invention to detect whether the application of power was due to a power on reset or an STR because by making this determination the system would be able to determine if processor context has been preserved. More specifically, if the detected condition were a power on reset, there would be no preserved processor context due to the fact that the system was powered off. If the detected condition were an STR then the system could determine that a sleep mode was initiated which would alert the system that a previous processor context existed and is preserved in the SMM.

14. Referring to claim 5, this is rejected on the same basis as set forth hereinabove.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee and Ebrahim as applied to claims 1, 2, 12 16 and 17 above, and further in view of Song et al¹ [Song] U.S. Pat. No. 5991531.

16. Referring to claim 13, the AAPA-Sasscer system as described above does not explicitly teach the computer comprising a host computer for dynamically translating and executing

¹ As cited in the previous office action

instructions of a target application designed for processing by a target computer containing an instruction set different from the instruction set of the host computer. In summary, the AAPA-Sasscer system does not teach translating and executing instructions, which are designed to run on a separate computer, to run on a host computer. Song does explicitly teach translating and executing instructions, which are designed to run on a separate computer, to run on a host computer [col. 1 lines 45-52, col. 3 lines 26-29 and 35-39]. The vector processor architecture that permits emulation of double-width operations is interpreted as the host computer. The 64-byte operations are interpreted as the instruction set designed for processing by a separate target computer and which is also different from the instruction set of the host computer. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the AAPA-Sasscer system to allow the emulation and process of instructions that are designed to run on a separate computer because it would allow the AAPA-Sasscer system to support the longer data width operations, which are more common in newer processors, while still maintaining a reduced chip size, cost and code length as taught by Song [col. 2 lines 41-43].

Allowable Subject Matter

17. Claims 7-11 and 14-15 are allowed.
18. Claims 6 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

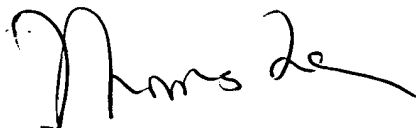
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Connolly whose telephone number is (703) 305-7849. The examiner can normally be reached on M-F 8AM-5PM (except every first Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C Lee can be reached on (703) 305-9717. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Connolly
Examiner
Art Unit 2115

mc
May 27, 2004


THOMAS LEE
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